5.0 SITE PARAMETERS

Assuming the certified design will be referenced for a wide range of sites, it is necessary to specify a set of site parameters enveloping the conditions that could be present at most potential power plant sites in the United States. These parameters are provided in Table 5.0-1. It is intended that any facility that references the certified design will utilize a site where the actual site-specific conditions are within the defined envelope.

In the case of seismic design parameters, deviations from the defined conditions may be justified by site-specific soil-structure interaction analyses. The results may be used to confirm the seismic design adequacy of the certified design using approved methods and acceptance criteria.

Table 5.0-1—Site Parameters for the U.S. EPR Design
(5 Sheets)

Precipitation	
Parameter	**Value(s)**
Rainfall rate (for roof design)	Maximum site rainfall rate of 19.4 inches per hour.
Snow & Ice Load (for roof design)	Maximum snow and ice load of 100 psf extreme live load.
Seismology	
Parameter	**Value(s)**
Seismology (SSE response spectra using figures)	Horizontal design ground motion shall be the certified seismic design response spectra shapes anchored to a peak ground acceleration of 0.3 g. Vertical spectra shall be the same as the horizontal spectra.
Flood Level	
Parameter	**Value(s)**
Maximum flood or tsunami	Maximum flood or tsunami level is no more than 1 ft below grade.
Temperature	
Parameter	**Value(s)**
Design ambient temperature	The 0% exceedance maximum ambient temperature is 115°F Dry Bulb and 80°F Wet Bulb coincident. The 0% exceedance minimum ambient temperature is -40°F. The 1% exceedance maximum ambient temperature is 100°F Dry Bulb and 77°F Wet Bulb, coincident. The 1% exceedance minimum ambient temperature is -10°F.
Wind	
Parameter	**Value(s)**
Maximum sustained speed	The normal maximum wind speed is 145 mph.
Tornado	
Parameter	**Value(s)**

Table 5.0-1—Site Parameters for the U.S. EPR Design
(5 Sheets)

Tornado (maximum speed, pressure drop, radius of maximum rotational speed, rate of pressure drop, missile spectra)	Maximum tornado wind speed of 230 mph. Maximum rotational speed of 184 mph. Maximum tornado pressure drop of 1.2 pounds per square inch at 0.5 psi per second. Radius of maximum rotational speed is 150 ft

Table 5.0-1—Site Parameters for the U.S. EPR Design (4 Sheets)

Soil	
Parameter	**Value(s)**
Soil properties (minimum shear wave velocity, minimum bearing capacity (static), liquefaction potential)	Minimum shear wave velocity of 1000 feet per second. Minimum bearing capacity (static) (Low strain best estimate average value at bottom of basemat) 22ksf in localized areas at the bottom of the Nuclear Island basemat and 15ksf on average across the total area of the bottom of the Nuclear Island basemat. No potential for liquefaction.
Maximum ground water level	Maximum ground water level is 3.3 ft below grade.
Maximum Differential Settlement (across the basemat)	1/2 inch in 50 ft in any direction
Slope Failure Potential	No slope failure potential is considered in the design of safety-related SSC for U.S. EPR design certification.

Table 5.0-1—Site Parameters for the U.S. EPR Design (4 Sheets)

Inventory of Radionuclides which Could Potentially Seep Into the Groundwater

Nuclide	Activity (µCi/g)	Nuclide	Activity (µCi/g)	Nuclide	Activity (µCi/g)	Nuclide	Activity (µCi/g)
Br-83	3.2E-02	**Mn-54**	1.0E-03	**Y-91M**	5.2E-04	**TE-129**	2.4E-03
Br-84	1.7E-02	**Fe-55**	7.6E-04	**Y-91**	8.1E-05	**TE-131M**	3.7E-03
Br-85	2.0E-03	**Fe-59**	1.9E-04	**Y-92**	1.4E-04	**TE-131**	2.6E-03
I-129	4.6E-08	**Co-58**	2.9E-03	**Y-93**	6.5E-05	**TE-132**	4.1E-02
I-130	5.0E-02	**Co-60**	3.4E-04	**ZR-95**	9.3E-05	**TE-134**	6.7E-03
I-131	7.4E-01	**Na-24**	3.7E-02	**NB-95**	9.3E-05	**BA-137M**	1.0E-01
I-132	3.7E-01	**Zn-65**	3.2E-04	**M0-99**	1.1E-01	**BA-140**	6.2E-04
I-133	1.3E+00	**W-187**	1.8E-03	**TC-99M**	4.6E-02	**LA-140**	1.6E-04
I-134	2.4E-01	**Rb-88**	1.0E+00	**RU-103**	7.7E-05	**CE-141**	8.9E-05
I-135	7.9E-01	**Rb-89**	4.7E-02	**RU-106**	2.7E-05	**CE-143**	7.6E-05
Cs-134	1.7E-01	**Sr-89**	6.3E-04	**RH-103M**	6.8E-05	**CE-144**	6.9E-05
Cs-136	5.3E-02	**Sr-90**	3.3E-05	**RH-106**	2.7E-05	**PR-143**	8.8E-05
Cs-137	1.1E-01	**Sr-91**	1.0E-03	**AG-110M**	2.0E-07	**PR-144**	6.9E-05
Cs-138	2.2E-01	**Sr-92**	1.7E-04	**TE-127M**	4.4E-04	**NP-239**	8.7E-04
Cr-51	2.0E-03	**Y-90**	7.7E-06	**TE-129M**	1.5E-03		

Table 5.0-1—Site Parameters for the U.S. EPR Design (4 Sheets)

Atmospheric Dispersion Factors (χ/Q)	
Parameter	**Value(s)**
Meteorological Dispersion (values at EAB, and LPZ at appropriate time intervals for short and long term)	Atmospheric dispersion factors – χ/Q (sec/m^3) - Exclusion Area Boundary (0.5 mi) χ/Q 0 - 2 hours $\leq$ 1.00E-03 - Low Population Zone (1.5 mi) χ/Q 0 – 2 hours $\leq$ 1.75E-04 2 – 8 hours $\leq$ 1.35E-04 8 – 24 hours $\leq$ 1.00E-04 1 – 4 days $\leq$ 5.40E-05 4 – 30 days $\leq$ 2.20E-05